Cisco Network Electronics IDF Stackable Switches with Layer 3 routing in the first switch, Serves 168 ports with 24 powered ports		
GBICs		
WS-G5483=	1000BASE-T GBIC	8
WS-G5484=	GBIC-SX	2
2950T		
WS-C2950T-48-SI	48 10/100 and 2 10/100/1000BASE-T uplinks, Standard Image	3
3560-24 PWR		
WS-C3560-24-PS-S	24-10/100 inline power + 2 GBIC ports: SMI	1
CAB-AC	Power Cord,110V	
CAB-AC	Power Cord,110V	1
UPS		
SU3000RMXL3U	SMARTUPS 3 KVA RACKMOUNT EXT. RUN UPS	1
WEXTWAR1YR-SB-13	1 year extended warranty on su3000rmxl3u	
SU48R3XLBP*	Extended Battery Pack 2.2 Kva	(if VOIP)
AP9619	NETWORK MGT W/ENVIRONMENTAL MONITORING	1
Wireless Access Points		
Wireless Access-Point		
AIR-AP1231G-A-K9	802.11g IOS AP w/Avail CBus Slot, FCC Cnfg	
S12W7K9-12213JA	Cisco 1200 Series IOS WIRELESS LAN	
AIR-PWR-CORD-NA	AIR Line Cord North America	
AIR-ANT1728	5.2 dBi High Gain Omnidirectional Ceiling Mount Antenna	
AIR-ANT4941	2.2 dBi Dipole Antenna (Standard Rubber Duck)	
Wireless Coverage Survey		

C. ES #5

Cisco Network Electronics MDF Stackable Layer 3 Core Switch, , Serves 168 ports with 24 powered ports		
GBICs		
WS-G5483=	1000BASE-T GBIC	10 2/IDF plus
WS-G5484=	GBIC-SX	4
2950T		
WS-C2950T-24	24 10/100 ports w/ 2 10/100/1000BASE-T ports, Enhanced Image	1
WS-C2950T-48-SI	48 10/100 and 2 10/100/1000BASE-T uplinks, Standard Image	2
3560-24 PWR		
WS-C3560-24-PS-S	24-10/100 inline power + 2 GBIC ports: SMI	1
CAB-AC	Power Cord,110V	1
3750-24		
WS-C3750G-24TS-S	Catalyst 3750 24 10/100/1000T + 4 SFP Standard Multilayer	1

UPS

SU3000RMXL3U	SMARTUPS 3 KVA RACKMOUNT EXT. RUN UPS	1
WEXTWAR1YR-SB-13	1 year extended warranty on su3000rmxl3u	1
SU48R3XLBP*	Extended Battery Pack 2.2 Kva	1
AP9619	NETWORK MGT W/ENVIRONMENTAL MONITORING	1

3725 Router

CISCO3725	3700 Series, 2-Slot, Dual FE, Multiservice Access Router	1
CAB-AC	Power Cord,110V	1
FL-SRST-MEDIUM	Feat Lic Survivable Remote Site Telephony up to 48 phones	1
MEM3725-128U192D	128 to 192MB DIMM DRAM factory upgrade for the Cisco 3725	1
MEM3725-32U64CF	32 to 64MB Cisco 3700 Compact Flash factory upgrade	1
NM-BLANK-PANEL	Blank Network Module Panel	1
NM-HDA-4FXS	High density analog voice/fax network module with 4 FXS	1
EM-HDA-4FXO	4-port voice/fax expansion module - FXO	1
S372CP-12305	Cisco 3725 Ser IOS IP PLUS	1
WIC-BLANK-PANEL	Blank WAN Interface Card Panel	3

Pix Firewall

CON-SNTP-Pix515FE	Smartnet 24x7x4 Chassis, unrestricted SW, FE, prts, VAC+	1
Pix-515E-UR-FE-BUN	Pix-515E-UR-FE bundle with chassis, unrestricted SW, 6FE, VAC+	1
CAB-AC	110V power cord	1
Pix-515E-VPN-3DES	Pix-515E-VPN-3DES/AES VPN/SSH/SSL encryption license	1
SF-Pix-6.3	Pix V6.3 software for the 515E, 525, 535 chassis	1
Pix-VAC-Plus	Pix 66MHz DES/3DES/AES VPN accelerator card+ (VAC+)	1
Pix-4FE-66	Pix 66MHz four port Ethernet int RJ45 card	1
Pix –515-UR-SW	Pix 515E Unrestricted UR feature license	1

Cisco Network Electronics IDF
Stackable Switches with Layer 3 routing in the first switch,
Serves 168 ports with 24 powered ports

GBICs

WS-G5483=	1000BASE-T GBIC	8
WS-G5484=	GBIC-SX	2

2950T

WS-C2950T-48-SI	48 10/100 and 2 10/100/1000BASE-T uplinks, Standard Image	3

3560-24 PWR

WS-C3560-24-PS-S	24-10/100 inline power + 2 GBIC ports: SMI	1
CAB-AC	Power Cord,110V	
CAB-AC	Power Cord,110V	1

UPS

SU3000RMXL3U	SMARTUPS 3 KVA RACKMOUNT EXT. RUN UPS	1
WEXTWAR1YR-SB-13	1 year extended warranty on su3000rmxl3u	
SU48R3XLBP*	Extended Battery Pack 2.2 Kva	(if VOIP)
AP9619	NETWORK MGT W/ENVIRONMENTAL MONITORING	1

Wireless Access Points

Wireless Access-Point

AIR-AP1231G-A-K9	802.11g IOS AP w/Avail CBus Slot, FCC Cnfg
S12W7K9-12213JA	Cisco 1200 Series IOS WIRELESS LAN
AIR-PWR-CORD-NA	AIR Line Cord North America
AIR-ANT1728	5.2 dBi High Gain Omnidirectional Ceiling Mount Antenna
AIR-ANT4941	2.2 dBi Dipole Antenna (Standard Rubber Duck)
Wireless Coverage Survey	

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Examine conditions under which telecommunications equipment and related components are to be installed in coordination with Installer of materials and components specified in this Section and notify Architect in writing of any conditions detrimental to proper and timely installation. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

1. When Installer confirms conditions as acceptable to ensure proper and timely installation and to ensure requirements for applicable warranty or guarantee can be satisfied, submit to Architect written confirmation from applicable Installer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to Installer.

2. Visit site to identify and become familiar with existing field conditions and specific requirements of each site.

3. Verify all dimensions in field and confirm condition of existing hardware to be re-used.

4. Confirm space requirements and physical confines of all work areas to ensure all materials can be installed in spaces indicated.

3.02 PREPARATION

A. Protection: Provide adequate protection of equipment before and after installation.

B. Existing Communications Services: Ensure all telecommunications systems (voice, data, video) remain operational throughout the project.

1. Identify any additional telecommunications equipment, circuits, and wiring at the site not shown on demolition Drawings and interfering with installation of equipment specified in this Section.

2. Contact communications circuit and services providers to identify all circuits providing existing services.

3. Confirm removal of existing communications devices with Owner and that removal of devices will not cause disruption of communications services.

   a. Obtain instructions from [Architect] regarding conflicts that cannot be resolved by Contractor.

b. Remove all devices not required to ensure continuity of communications service and acceptable to Owner. Turn over all removed equipment to owner.

4. Coordinate all required shutdowns of existing communication services with Owner and local telephone company not less than 14 days prior to shutdown.

   a. Perform shutdowns after normal working hours defined by Owner and include cost of overtime and other related expenses in Contract. Claims for additional costs resulting from shutdowns not acceptable.

5. Remove all accessible portions of abandoned communications cabling per NEC 800.52 Tag all communications cabling not terminated at both ends but retained for future use.

C. Installation:

1. Prior to beginning the installation the contractors system Engineers shall provide (12) hours of time to meet with the owners and consultant Engineer to plan and discuss the final design.

2. At the meeting(s), the following that topics shall be discussed that apply to configuring equipment specified in this section:

   a. IP Addressing, Subnet Configuration, and VLAN Strategy

      (1) IP subnet configuration and VLAN assignments
      (2) Mail Relay and DMZ applications
      (3) Intranet VLAN Layout/ Layer 3 Routing

   b. WAN/LAN Network Strategy

      (1) Routing protocols
      (2) Router/Switch configurations
      (3) Internet coordination with ISP
      (4) Default gateways
      (5) Router, Switches, Hubs, and Host Naming Conventions
      (6) Internet HTTP, FTP, and SMTP Configuration Plans
      (7) QOS configurations for voice, video, and data transmission

   c. Security Strategy

      (1) Internet connections
      (2) Port blocking
      (3) Wireless connections
      (4) User authentication

   d. Network monitoring and management

   e. Integration and migration of legacy equipment and configurations.

3. During the installation, the contractors and system Engineers shall provide (2) hours of time bi-weekly to meet with the owner and consultant Engineer to plan and discuss the current tasks, project status and changes to the design.

3.03 INSTALLATION

A. Provide and install all components necessary to install complete telecommunications equipment system.

1. Install all rack mountable network equipment in racks or cabinets.

2. Unpack and prepare all equipment for installation. Dispose of all packing materials that the owner does not wish to retain.

3. Arrange for a staging location and provide staging of all equipment so that it is burned in for a minimum of 100 hours fully powered and fully pre-configured for the location it will service. Replace any equipment that has failed during the testing. Provide all failure records to the project engineer including equipment model number and serial number.

4. Assemble all equipment as required to meet the network requirements and as directed by the manufacturer and the project engineer. Mount all equipment in the final locations using hardware designed for the purpose. Provide any additional hardware, connecting cables, and peripheral components required to deliver a complete, functional system.

5. All owner training as specified in the specifications shall be completed before final cut-over is made.

6. When all sites are cut-over and fully functional the existing equipment shall be shut down and removed from service. In no case shall this take place sooner than 14 days after the cutover. The existing system shall be kept in standby service in the event the new system creates difficulties that cannot be quickly corrected and/or compromise the ability of the owner to utilize essential services.

7. Upon satisfactory completion of the cut-over and post-cut-over waiting period remove all the disconnected surplus equipment and, if eligible, provide for its return on the manufacturer's equipment exchange program. Turn over all remaining equipment to owner.

8. Provide all copper and fiber optic patch cables required to activate the inter-switch links, WAN connections, and all other interface cables, media adapters, transceivers etc. required for a complete operational system. Workstation patch cables are by others unless noted.

3.04 SWITCH CONFIGURATION

A. At a minimum (5) VLANs shall be configured.

1. Configure VLAN 1 to be the administrative switching VLAN.
2. Video Services VLAN
3. Data Services VLAN
4. VLAN for Wireless Access Points. Wireless Access Points shall be configured with static IPs.
5. VOIP voice services VLAN.

B. Configure a Gigabit Ether Channel link between each core site.

C. Configure Gigabit Ethernet links between the core switch and each edge switch.

D. Configure VLAN ports on all core and edge switches as required. The exact quantity of ports connected to specific VLAN's at each switch shall be verified with the owner prior to configuration.

E. Configure the routing in the core switch that allows the following traffic flow:

1. DHCP and broadcast traffic within individual building instructional subnets shall be restricted to that subnet.
2. All subnets shall have access to the Internet subnet.

F. Set an administrative password on all switches for Telnet and Console sessions. Turn password over to the local system administrator.

3.05 INTERNET FIREWALL

A. Provide Firewall equipment of the type and where shown on drawings and equipment lists.

B. Coordinate the following with Internet Service provider:

1. Ingoing and outgoing TCP-connections.
2. Port Blocking
3. Public IP and DMZ addressing for district email and web server(s).
4. Optional VPN access through the firewall for the owner

3.06 WIRELESS ACCESS POINTS

A. Install the access points in the suspended ceiling space in locations with cat. 6 outlet.

B. Provide polycarbonate enclosure and mounting hardware required to secure the AP to the wall above the suspended ceiling. Provide installation and materials as specified on drawings. Prior to ordering enclosures and installation of AP's obtain approval from the owner for installation approval.

C. Provide cat. 6 patch cables as required for connecting access point to network.

D. Label Access Point with static IP address and host name.

3.07 INTERNET CONNECTION

A. Coordinate installation timing and configuration requirements with IT Director
B. Configure all NAT, DNS hosting, IP addressing, and Mail Relay with IT Director.

3.08 FIELD QUALITY CONTROL

A. Computer Network Equipment Testing: Provided by Contractor.

B. Perform all testing under direct supervision of manufacturer's representative or accredited agencies for all specified equipment and services. Notify Architect and Owner in writing at least 3 working days prior to time testing is to begin. Architect and Owner reserve right to have representatives present and participating in testing. Provide re-testing at Contractor's expense if proper written notification required above is not given.

C. Demonstrate the NAT scheme and internal DHCP assignments using the "ipconfig" or "winipcfg" command from a typical instructional pc. Demonstrate that the links are up and running.

D. Test the entire system connectivity in conjunction with the district's system administrator.

E. Demonstrate the telnet management password has been configured on all edge switches and core switches.

F. Report: Submit written test report from authorized representative of equipment manufacturer indicating that system has been tested and is in working order prior to final inspection.

3.09 TRAINING

A. Provide (24) hours of training from the network hardware manufacturer representative. The training shall be on-site using the owner's newly installed equipment. The training hours shall not be shall be dependant on the number of attendees and may be divided up over a few days to meet the owner's schedule.

B. The training attendees will include select members of the owners IT staff.

C. Provide documentation to all attendees with an overview of the training session(s). The session(s) shall go over:

1. Overview of Switch Configuration Template used for the district
2. Overview of the manufacturers command line interface and IOS commands
3. VLAN creation and port configurations
4. Module installation and configuration
5. QOS configuration options down to the port level
6. Supervisory Engine configuration

3.10 ADJUSTING / CLEANING

A. Clean up debris from installation on daily basis.

END OF SECTION

SECTION 18776 - NETWORK SERVERS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes

1. Local area network (LAN) hardware, software, associated labor and engineering support.

1.02 SYSTEM DESCRIPTION AND SCOPE OF WORK

A. System Description

1. Local Area Network (LAN): Provide labor, materials, network equipment, services and operations required for complete installation of LAN compatible with Ethernet 10 Base T/F (10Mbs), Fast Ethernet 100 Base T/F (100Mbs), Gigabit Ethernet, and 10Gigabit Ethernet.

2. The network equipment package shall include:

   a. Ethernet network servers to serve a full duplex Gigabit Ethernet Backbone and 10/100 switching to work area outlets. Server connectivity shall be switched dedicated full duplex 1000TX.

   b. Integrate Power Protection Equipment (Uninterruptible Power Supply Equipment)

   c. Provide operating software and equipment not listed above but included on the list of network servers and equipment..

3. Provide all equipment as shown on the attached lists and applicable specification sections. Adhere to all terms and conditions of the NJSCC state contract and its overseeing state agency.

B. Performance Requirements

1. Comply with applicable requirements in Local, State and Federal Codes and both TIA/EIA Standards and BICSI standards

2. Specified network equipment system derived from recommendations in recognized telecommunications industry standards, including following documents in their most current revision and version incorporated by reference:

   a. ANSI/TIA/EIA – 606, Administration Standard for Telecommunications Infrastructure of Commercial Buildings
   b. ANSI/TIA/EIA – 607, Commercial Building Grounding and Bonding Requirements for Telecommunications
   c. BICSI - TDMM, Building Industries Consulting Services International, Telecommunications Distribution Methods Manual (TDMM)
   d. National Fire Protection Agency (NFPA – 70), National Electrical Code (NEC)

3. Network Equipment shall support the following Ethernet standards:

   a. IEEE 802.3, 10BaseT, and 10BaseF
   b. IEEE 802.3u, 100BaseTX, 100BaseFX
   c. IEEE 802.3z, 802.3x, & 802.3ab Gigabit Ethernet
   d. IEEE 802.3af Power over Ethernet
   e. VLAN Trunking/Tagging: IEEE 802.1q

f. Spanning-Tree Protocol: IEEE 802.1d
g. 802.1p Priority Queuing
h. Gigabit EtherChannel

4. Network Servers shall support the following standards:

a. SNMP agent V.1 (RFCs 1155-1157)
b. SNMPv2c
c. Ethernet MIB (RFC 1643)
d. RADIUS
e. Resource Reservation Protocol (RSVP) and RSVP+
f. Dynamic Host Configuration Protocol (DHCP), and Domain Name System (DNS)
g. Telnet, TFTP, and BOOTP for management access.
h. Available for Novell Netware Server Software
i. Available for Microsoft Windows Server software

5. Network Equipment shall meet the following safety and emissions requirements:

a. UL 1950
b. EN 60950
c. CSA-C22.2 no. 950
d. IEC 950
e. FCC 15J Class A
f. VCCI CE II
g. CE Mark
h. EN 55022 Class B
i. CISPR 22 Class B

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's product literature, technical specifications, and similar information for following items demonstrating compliance with specified requirements.

1. All network servers and associated components.
2. All Network Routing Equipment.
3. Rack configurations and wiring diagrams.
4. Software configurations
5. Network Server cut-over and test routines.

B. Quality Control Submittals:

1. Manufacturer Certification: Submit certification from manufacturer of products to be installed as part of this Project certifying that Installer is authorized by product manufacturer to install proposed products.

2. Installer Experience Listing: Submit list of at least 5 completed projects as specified below in "Quality Assurance - Installer Qualifications".

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Qualified to provide and test data network equipment system specified in this Section, certified by manufacturer of products to be installed, and completed at least 5 computer network installations of similar or greater size, nature and complexity as specified for this project.

1.05 SEQUENCING AND SCHEDULING

A. Provide installation schedule demonstrating that existing equipment will be maintained in operation until new equipment is programmed and ready for use.

1.06 WARRANTY

A. *Special Warranty*: Provide manufacturer's system warranty against electrical or mechanical defects for 1 year from date of final acceptance. The warranty shall begin after the system has been totally configured, tested and accepted.

1.07 MAINTENANCE AND SERVICE

A. Maintenance Service: FOR A PERIOD OF 1 YEAR after final acceptance provide complete service for all installed components, including all labor and materials. Provide service calls on system and make any adjustments and/or repairs required at no additional cost to Owner.

B. Maintenance Service: Provide software application upgrades and firmware upgrades for all installed equipment while it is under contract for maintenance service.

C. Special Maintenance Service: FOR A PERIOD OF 1 YEAR after final acceptance provide 24 hour x 7 day x 4 hour response time and all labor and materials to service all critical components including all core (backplane based) switches, all routers, all gateways, all firewalls and all additional network equipment that provides voice (telephone) services.

D. Special Maintenance Service: FOR A PERIOD OF 1 YEAR after final acceptance provide 8 hour 5 day Next Business Day response for all stackable closet switches that do not qualify for coverage in paragraph C above.

E. Provide single point contact to obtain authorized service.

F. Provide On-Site Services on Demand and Telephone Consulting Service.

G. Provide additional Services as stated in Telephone System specifications, if applicable.

H. Provide a detailed itemized cost breakdown for all services, both included services and additional on-demand services so that owner may apply appropriate funding to applicable services. For projects that are funded by E-rate, identify all services that do not qualify for basic maintenance funding under the current Federal E-Rate rules and guidelines so that such costs can be excluded from E-rate funding

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. Refer to attached quantity list for specific quantities of products to be provided.

2.02 EQUIPMENT LIST

Part No.	Description	Quantity
352529-001	ProLiant DL380 G3 Intel® XeonTM Processor 3.2 GHz-2MB – Rack Model Intel® Xeon™ Processor 3.20GHz/2MB 1GB Base Memory (2x512MB) Integrated Smart Array 5i Plus Controller Hot Plug Drive Cage-Ultra3 (5 x 1" and 1 x 1.6") 1.44MB Floppy Disk Drive 24X Low-profile IDE CD-ROM Drive Two (2) Compaq NC7781 PCI-X Gigabit NICs (embedded) PCI 10/100/1000 WOL Sliding Rails and Cable Management Arm SmartStart & Insight Manager 7 Integrated Lights-Out Management - standard Warranty - 3 year next business day onsite	2
300679-B21	300679-B21 - 1gb memory option(2x512)	2
300680-B21	300680-B21 - 2 GB Base Memory	2
313054-001	Compaq Hot Plug AC Redundant Power Supply Module	2
293048-B21	DL380 G3 Redundant Fan Option Kit	2
286778-B22	72.8-GB Pluggable Ultra320 SCSI 15,000 rpm Universal Hard Drive (1")	6
273915-B21	273915-B21 - HP Smart Array 6402/128 Controller (RAID)	2
331903-B21	331903-B21 - Slimline DVD-ROM/CD-RW Option Kit	2
352568-B21	Intel Xeon Processor 3.2 GHz/533 MHz-2MB L3 Cache	2
192186-001	Compaq UPS R3000 XR, Low Voltage	1

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Examine conditions under which telecommunications equipment and related components are to be installed in coordination with Installer of materials and components specified in this Section and notify Architect in writing of any conditions detrimental to proper and timely installation. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

1. When Installer confirms conditions as acceptable to ensure proper and timely installation and to ensure requirements for applicable warranty or guarantee can be satisfied, submit to Architect written confirmation from applicable Installer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to Installer.

2. Visit site to identify and become familiar with existing field conditions and specific requirements of each site.

3. Verify all dimensions in field and confirm condition of existing hardware to be re-used.

4. Confirm space requirements and physical confines of all work areas to ensure all materials can be installed in spaces indicated.

3.02 PREPARATION

A. Protection: Provide adequate protection of equipment before and after installation.

B. Existing Communications Services: Ensure all telecommunications systems (voice, data, video) remain operational throughout the project.

1. Identify any additional telecommunications equipment, circuits, and wiring at the site not shown on demolition Drawings and interfering with installation of equipment specified in this Section.

2. Confirm removal of existing communications devices with Owner and that removal of devices will not cause disruption of communications services.

a. Obtain instructions from Architect regarding conflicts that cannot be resolved by Contractor.
b. Remove all devices not required to ensure continuity of communications service and acceptable to Owner. Turn over all removed equipment to owner.

3. Coordinate all required shutdowns of existing communication services with Owner not less than 7 days prior to shutdown.

a. Perform shutdowns after normal working hours defined by Owner and include cost of overtime and other related expenses in Contract. Claims for additional costs resulting from shutdowns not acceptable.

4. Remove all accessible portions of abandoned communications cabling per NEC 800.52 Tag all communications cabling not terminated at both ends but retained for future use.

C. Installation:

1. Prior to beginning the installation the contractors system Engineers shall provide (12) hours of time to meet with the owners and consultant Engineer to plan and discuss the final design.

2. At the meeting(s), the following that topics shall be discussed that apply to configuring equipment specified in this section:

a. IP Addressing, User Configurations, and support Strategy
b. Security Strategy
c. Back-up strategy
d. Redundancy and failure mode analysis
e. Monitoring and management
f. Integration and migration of legacy equipment and configurations.
g. Cut-over with minimal service interruption.

3. During the installation, the contractors and system Engineers shall provide (2) hours of time bi-weekly to meet with the owner and consultant Engineer to plan and discuss the current tasks, project status and changes to the design.

3.03 INSTALLATION

A. Provide and install all components necessary to install complete telecommunications equipment system.

1. Install all rack mountable network equipment in racks or cabinets.

2. Unpack and prepare all equipment for installation. Dispose of all packing materials that the owner does not wish to retain.

3. Arrange for a staging location and provide staging of all equipment so that it is burned in for a minimum of 100 hours fully powered and fully pre-configured for the location it will service. Replace any equipment that has failed during the testing. Provide all failure records to the project engineer including equipment model number and serial number.

4. Assemble all equipment and peripherals as required to meet the network requirements and as directed by the manufacturer and the project engineer. Mount all equipment in the final locations using hardware designed for the purpose. Provide any additional hardware, connecting cables, and peripheral components required to deliver a complete, functional system.

5. All owner training as specified in the specifications shall be completed before final cut-over is made.

6. When all sites are cut-over and fully functional the existing equipment shall be shut down and removed from service. In no case shall this take place sooner than 14 days after the cutover. The existing system shall be kept in standby service in the event the new system creates difficulties that cannot be quickly corrected and/or compromise the ability of the owner to utilize essential services.

7. Upon satisfactory completion of the cut-over and post-cut-over waiting period remove all the disconnected surplus equipment and, if eligible, provide for its return on the manufacturer's equipment exchange program. Turn over all remaining equipment to owner.

8. Provide all copper and fiber optic patch cables required to activate the servers, and all other interface cables, media adapters, transceivers etc. required for a complete operational system.

3.04 SERVER CONFIGURATION

A. Includes Physical Server and Single Server Installation.

1. Install and configure operating software including stand-alone server service configurations identified by owner's networking design.

2. Install and configure Single Server anti-Virus software

3. Install and configure Single Server Backup Software or agents as provided by the owner.

4. Create up to 5 user administrative accounts and templates

5. Create up to 5 user group shares and templates.

6. Install and Configure UPS Agents. Agents shall include configuration for automatic shutdown of the servers upon battery power depletion by the UPS system after loss of commercial power.

7. Verify proper connectivity of the network cards

8. Integrate into Owner's network as specified by owner – to include adding each server to the domain

9. Provide appropriate basic security measures including the disabling of unnecessary high risk services and the restriction of non-administrative user access to files and services per the owner's security plan.

10. Application design, directory design, message system design, web design, and security design are outside the scope of services included herein and can be separately quoted upon request. These designs are driven by the owner's operational and geographic requirements.

3.05 FIELD QUALITY CONTROL

A. Computer Network Server Testing: Provided by Contractor.

B. Perform all testing under direct supervision of manufacturer's representative or accredited agencies for all specified equipment and services. Notify Architect and Owner in writing at least 3 working days prior to time testing is to begin. Architect and Owner reserve right to have representatives present and participating in testing. Provide re-testing at Contractor's expense if proper written notification required above is not given.

C. Demonstrate the Servers operation from a typical instructional pc. Demonstrate that the links are up and running.

D. Test the entire system connectivity in conjunction with the district's system administrator.

E. Report: Submit written test report from authorized representative of equipment manufacturer indicating that system has been tested and is in working order prior to final inspection.

3.06 TRAINING

A. Provide (24) hours of training from the network hardware manufacturer representative. The training shall be on-site using the owner's newly installed equipment. The training hours shall not be shall be dependant on the number of attendees and may be divided up over a few days to meet the owner's schedule.

B. The training attendees will include select members of the owners IT staff.

C. Provide documentation to all attendees with an overview of the training session(s). The session(s) shall go over:

1. Overview of and Server Configuration Template used for each server.
2. Backup and maintenance instructions and configurations
3. C Provide Security and access configuration for all user classes.
4. As-Built documentation
5. List of all patches, installed services, installed software, serial numbers, usernames, and user passwords.

3.07 ADJUSTING / CLEANING

A. Clean up debris from installation on daily basis.

END OF SECTION

FedEx | Ship Manager | Label 7912 7646 1750

https://www.fedex.com/cgi-bin/ship_it/unity/5BeZu8FaQu5CaQq8I...

13 6904

Insert airbill here

From: Origin
Sheree Hughe
The Thomas (
217 Monigom
Syracuse, N

Route
Tina
Delivery Point
TW-B204

OMD
PO#
Sdr Sheree Hughes
04/16/07
12:03:25

SHIP TO:
Marler
Feder
Office
9300
Capitol

791276461750

W10300541Y

FedEx.

Ship Date: 13APR07
ActWgt: 1 LB
System#: 8356700/INET2600
Account#: S *********

Delivery Address Bar Code

Ref # 6304
Invoice #
PO #
Dept #

RECEIVED & INSPECTED
APR 16 2007
FCC - MAILROOM

STANDARD OVERNIGHT

MON
Deliver By:
16APR07

TRK# 7912 7646 1750

FORM 0201

BWI A2

20743 -MD-US

XH GBOA

hin

ium
or

1747